Airwheel User Manual—Moel X

Airebike.com

Airebike Technology

2015-04-01

Airebike Technology

Airebike Technology was established in 2010. We are engineers, designers, and industry veterans who passionately believe that electric balance scooter make a better world. We are the self-balancing transport provider. We believe that, in the times of rising fuel costs and public transport fares, we provide a fantastic solution (include one wheel scooter and two wheel balancing electric scooter）for many commuters.

Airebike is committed to solve the problem of the last 5 km's travel. The vision of Airebike is to realize digitization, seamless connection and clean energy, which is the future direction of personal transportation, while its mission is to improve users' travel experience by virtue of its top-notch technology, creative design and considerate services. Airebike is a consumer-oriented and environmentally friendly provider. The aim of us is to introduce a range of self-balancing electric scooters (include one wheel scooter and two wheel balancing electric scooter）to the market as an alternative and eco-friendly form of transport.

About User Manual

This manual includes safety usage instructions. Please make sure this manual is read through and fully under- stood before usage.

Inside the package you will find: the Airwheel (X-series), battery charger, extended air-pump connector, user guide and manual, warranty card, and quality certificate.

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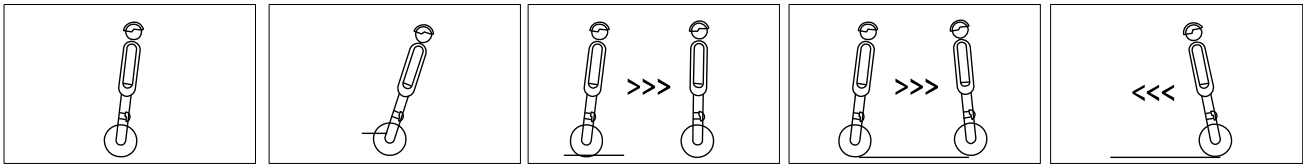
1. Introduction

Airwheel is the state-of-the-art means of transport aid adopting aerospace attitude control theory, fuzzy software algorithm, and gyroscope system to maintain balance by leaning forward and backward. Riders can control the vehicle to go forward, accelerate, decelerate, and brake, etc. by leaning forward or backward. Similar to the techniques of riding a bicycle, the riders achieve balance on Airwheel by slightly tilting sideways.

Airwheel is the greenest and lightest smart unicycle which can be easily carried into buses or subways, facilitating daily commuters.



2. Safety

There are risks of riding or driving any vehicle. Airwheel is no exception. Please make sure this manual is read through and fully understood before getting started, and be alert when riding.

Important Note:

1. Sharp acceleration or deceleration or speeding via overly leaning forward or backward is strictly forbidden. Do not accelerate when power level indicators show only one bar left, in this case, please recharge your Airwheel as soon as possible.
2. Do not ride Airwheel when risking any accidental falls. Safety goes first.

Attention:

1. Do wear helmet, gloves, elbow/knee pads or other necessary protection gears.
2. Do not ride Airwheel on packed roads or crowded streets with motorized vehicles.
3. Do not ride Airwheel on rough or bumpy surfaces, such as muddy or gravel roads.
4. Do not ride Airwheel on wet, slippery surfaces, especially icy ones.
5. Do not ride Airwheel on slopes of over 15° gradient.
6. Do not allow children under 15 to ride Airwheel.
7. Do not ride Airwheel in bleak winter conditions.

Other unpredictable risks may occur during usage, please ride with caution.

WARNING Other unpredictable risks may occur during usage, please ride with caution.

WARNING Airwheel will not take responsibilities for any injuries caused by misuse of the product.

2.1 Safety Guidelines and Riding Etiquettes

Please learn and abide by local laws and regulations when riding Airwheel. Be careful and considerate of others, and take precaution of accidents and collisions.

Please ride at safe and proper speed and make sure your Airwheel is under control. Keep yourself a safe distance from pedestrians and vehicles and always be prepared to stop.

Respect pedestrians and avoid startling pedestrians. Especially when children approaching from behind announce yourself and slow down to walking speed when passing. Pass on the left whenever possible. When approaching a pedestrian from the front, stay to the right and slow down.

Keep a safe distance from other Airwheel riders and always avert from obstacles. Unless there's ample space for other pedestrians, please do not ride side by side with fellow Airwheel riders.

Please avoid riding in poor light unless necessary, and make sure in this scenario you ride at slow, safe speed with care and geared with mounted driving lights if possible.

Please relax your body when riding, bend your knees and elbows slightly and look straight forward.

Riding backward can be dangerous. For emergency, ride slowly backward for necessary avoidance of obstacles.

WARNING Please lean forward slightly to accelerate instead of lunging forward suddenly. You may lose balance and get yourself hurt in aggressive acceleration. It is the main cause of accidental falling overs.

2.2 Initiative Safety Measures

Please read through this manual and make sure it is fully understood.

Do not allow others to try your Airwheel, unless he/she has read through this manual.

Please do wear safety gears while riding Airwheel. Make sure your helmet is comfortably fit and qualified for safety protection. Riders may wear glasses, elbow/knee pads according to their own experiences.

Please do not ride Airwheel when you are under the weather or affected by alcoholic/drugs and not able to follow the instructions on the manual.

Please stop riding immediately when Airwheel starts alerting for low battery or over speed. Charge your Airwheel in time to ensure safe and smooth usage.

Make sure to power off Airwheel before lifting it. Do not lift Airwheel on the wheel in case your fingers get caught between the tire and case.

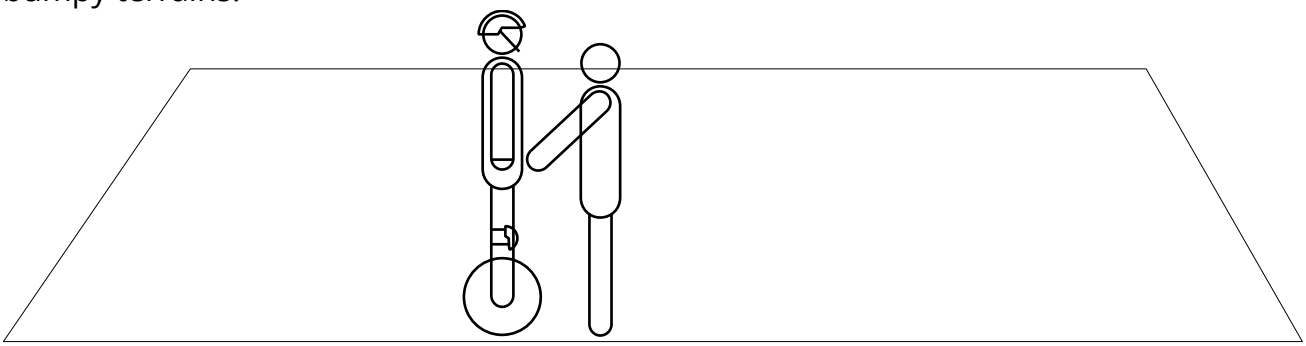
Check your Airwheel carefully for any loosened or damaged parts every time prior to usage and do not ride before proper troubleshooting.

3. Airwheel Learning Tips

3. 1 before Getting Started

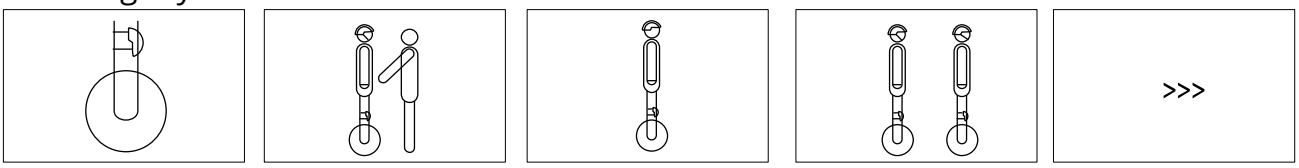
For starters, be sure to equip yourself with comfortable sportswear and sneakers. Warm up your body and keep your body agile. Considering the average human athletic skills, the height of pedal is set 1Ocm from ground only, which guarantees your safety in case of falling over. A Helmet, gloves, knee and ankle pads are also essential for starters.

To start, please bring Airwheel to open space and watch out for obstructions and bumpy terrains.



3. 2 Learning Tips for Starters

1. Place Airwheel vertically on the ground by one hand and power it on.
2. Unfold the pedals and straddle Airwheel.
3. Place one foot on the center of a pedal and bend the leg slightly to press on the cushion rubber tightly.
4. Lift your hand that holds Airwheel, stand upright naturally and look straight forward. Shift your body weight to the leg standing on the ground and try to achieve lateral balance.
5. Maintain this position and shift your body weight gradually to the other leg and lift your supporting leg from the ground and try to maintain momentary balance.
6. Please follow and practice the above steps before starting gliding with one foot on a pedal.
7. After being able to glide with one foot smoothly, place another fool on a pedal and relax your legs for better balance.
8. Ride along and try to change directions by shifting body weight or twisting your waist slightly.



3.3 Important Note

Training belt is highly recommended for starters, which reduces risk of falling over.

WARNING

Players under 18 or over 45 are supposedly finding your learning partners.
Make sure to check the power level and tire before riding.
Please control speed before riding smoothly.

4. Usage

4.1 Component Drawing

(See Page21-24)
Power Button
Power Level Indicators
Charger
Pedal (Foldable)

4.2 Getting Started

Place Airwheel vertically on the ground and tum it on. The Power Level LED Indicators will be on and the buzzer will beep, and the unit is ready to use.

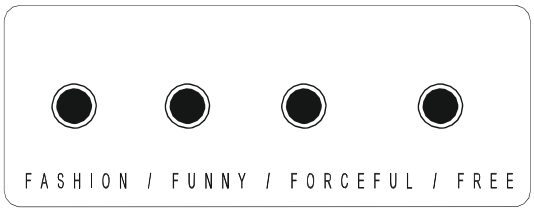
If Airwheel tilts either forward or backward after powered on, please wait until it adjusts to upright position before riding.

4.3 Power level

A four-bar LED indicator is applied to indicate the power level. All fours will be lit when power level is over 85% and will go off one by one as the level drops. Please check power level every time before usage to ensure there is enough power for a return trip. You may recharge it every time after usage.

When power level falls lower than 15%, all four ligh1s will blink and the buzzer will beep. The front end of the pedal will rise to force you to decelerate and eventually slop. Please do not attempt to ride again, otherwise you may suffer a sudden loss of power and fall over.

Duration range will be limited during winter, since the battery performance drops sharply in cold weather. For instance, at -15t, the discharge capacity is only about half compared to that at room temperature.



Battery level indicator

4.4 Speed Control

To prevent injuries caused by over speed, Airwheel sets a maximum speed. When speed exceeds 12km/h, the front end of the pedal will rise gradually and when the speed exceeds 16km/h, the pedal will pose a 10' angle to the leveling surface, which stop you from inclining further to accelerate. The pedal will flatten itself gradually as the speed decreases.

NOTE: Please do not lean further to accelerate when approaching the maximum speed.

4.5 Tilting Protection

When Airwheel tilts to over 45° sideways, e.g. when Airwheel turn over, the control system will activate tilting protection.

The motor will stall immediately to prevent injuries.
The buzzer will start a long buzz and the LED indicators will flash at the same time.
To deactivate this, please power off the unit to reboot.

4.6 Charge the Battery

Power on the NC source after plugging in the charger, otherwise the charger will stop working to avoid charging safety.

Airwheel is equipped with a high-power charger. Normally it takes about 90-120 min to be fully charged and 60-90 min to 80% full (check the specification table for detailed info). The indicator lights will tum red when charging and green when charging completes.

If not for emergencies, please wait until charging completes before unplugging, for battery protection board will conduct SOC equalization as charging completes.

4.7 Water Resistance

Airwheel is featured with IP56 water-proof rating, which sails safely in 10mm (or below) depth of water. You may ride it in drizzles shortly, yet avoid sinking it in deep water or riding it on rainy days for a long time.

5. Maintenance

5.1 Storage

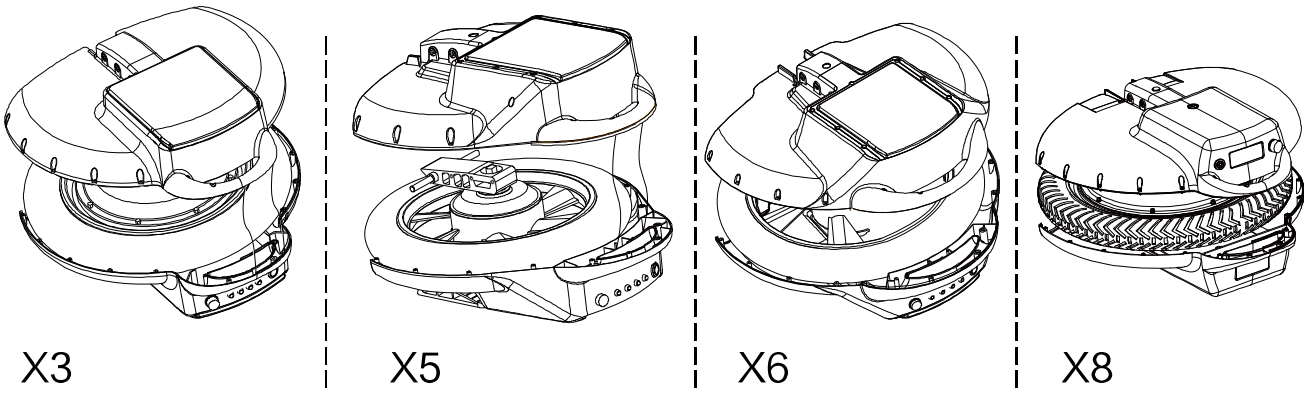
Please store Airwheel in a dry location. For non-regular users, recharge the battery every 90 days to maintain the battery life and store Airwheel only after it's fully charged.

5.2 Inflation

Use the extended connector to inflate the tire. Without the connector, you may fail to pump air into the wheel.

5.3 Change the Tire

To repair or change the inner or outer tire, open one side cover (the one without indicator lights).First, unscrew the 14 bolts on the sides, then the 6 bolts on the center, and then open the casing. Take special care with the connecting wires set alongside the inner rim, no dragging or cracking open.



NOTE:

A. Electric Sparks may flash momentarily at the end of the power cord after maintenance. That is normal and no need to panic.

B. Do not open the cover on the casing side with indicator lights. Any Malfunction or damage caused by opening parts unspecified in this manual will not be covered by the warranty.

6. Warranty

Please retain the warranty and proof of purchase (i.e. receipt).

Limited Warranty Terms (Non-Artificial Damage Only):

1. 1year for the main body (battery and other wearing parts not covered).
2. 6 months for battery and 1 month for inner and outer tires.

The following situations will not be covered by the warranty:

1. Malfunction due to misuse
2. Malfunction caused by unauthorized modifications, disassembling, or repair.
3. Accidental damage or malfunction due to improper storage.
4. Discrepant warranty/proof of purchase and product.
5. Exterior damages due to usage.
6. Disassembling parts unspecified by this manual.
7. Damage or malfunction caused by riding on rainy days or dipping in water.

7. Specifications

Specification	Parameters	Details
Maximum Speed	About 18 km/h	Alert activated at 12km/h
Range per Charge	X3:15-20km / X5:18-23km X6:18-23km / X8:18-23km	May vary with rider's weight, road condition and temperature
Safe Climbing Angle	About 15°	Riders weighing 60kg get up to 18°
Battery	130Wh Optional: 88.8Wh / 170Wh	Protection board with SOC equalization
Temperature	-10℃-40℃	Best at 20℃-30℃
Maximum Load	120Kg	
Charger Voltage	AC 110-220V 50-60Hz	
Charge Time	130Wh:90min 170Wh:120min	80% charged in 60min 80% charged in 80min
Size	X3:Height: 450mm, Length: 395mm, Thickness: 160mm X5:Height: 450mm, Length: 392mm, Thickness: 163mm X6:Height: 480mm, Length: 450mm, Thickness: 180mm X8:Height: 497mm, Length: 450mm, Thickness: 168mm	
Pedal Height	115mm	When dismounted
Tire Size	X3/X5: 360mm X6/X8: 420mm	
Main Body Weight	X3:9.8kg/X5:9.6kg/X6:11.5kg/X8:11.1kg	
Tilting Protection	45°side-to-side on average	Motor stalls when tilting over 45°
Speed Limit Protection	Activated at 12Km/h	Front part of pedal will rise to prevent further acceleration
Low Battery Protection	Activated on 15% power battery	Front part of pedal will rise to decelerate till fully stop
Power and Error Indication	LED Power Indicators	Red when turned on, Blinks when protection activated

Specification table is for reference only; please visit our website www.airebike.com for latest update.

User guide for Bluetooth speaker of Airwheel music version..

1. Tum on Airwheel music version
2. Enable Bluetooth function on your smart phone.
3. Start to search surrounding Bluetooth equipment's for "S10" and pair with it to realize wireless connection from your smart phone to X5 Bluetooth Speaker.
4. Play music on your smart phone and the Bluetooth speaker will be tuned in synchronously (use the volume control keys on your smart phone to adjust the speaker volume).
5. The valid wireless pairing scope is 5-8m.
6. Compatibility: Smart phones and tablet PCs using Android, IOS, Symbian and Windows OS.

NOTE:

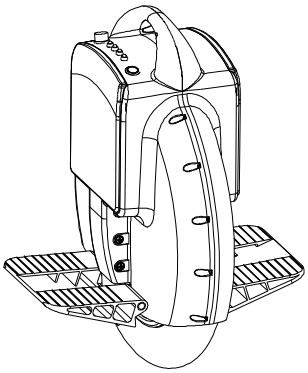
1. The Bluetooth speaker do not support synchronous multi-pairing.
2. The Bluetooth speaker adopts random sequential access to multi-pairing.

8. Appendix

8.1Tire Pressure

Generally Airwheel's tire pressure is supposed to range between 1.5-2.0KG/cm3• High tire pressure contributes to smaller friction force and longer battery range, yet delivers less damping effect. On the other hand, low tire pressure shortens battery range but smoothens riding experience on bumpy terrains. Over1y high or low tire pressure will deteriorate tire abrasion.

8. 2 Models and Illustrations of Mars Rover X Series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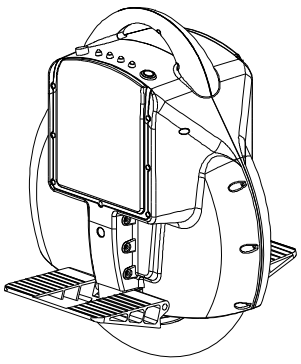
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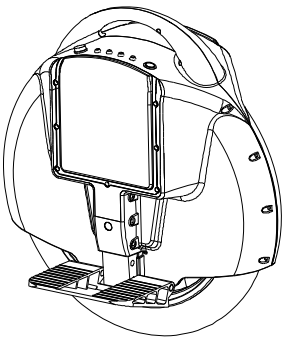
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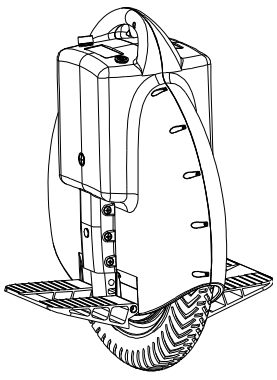
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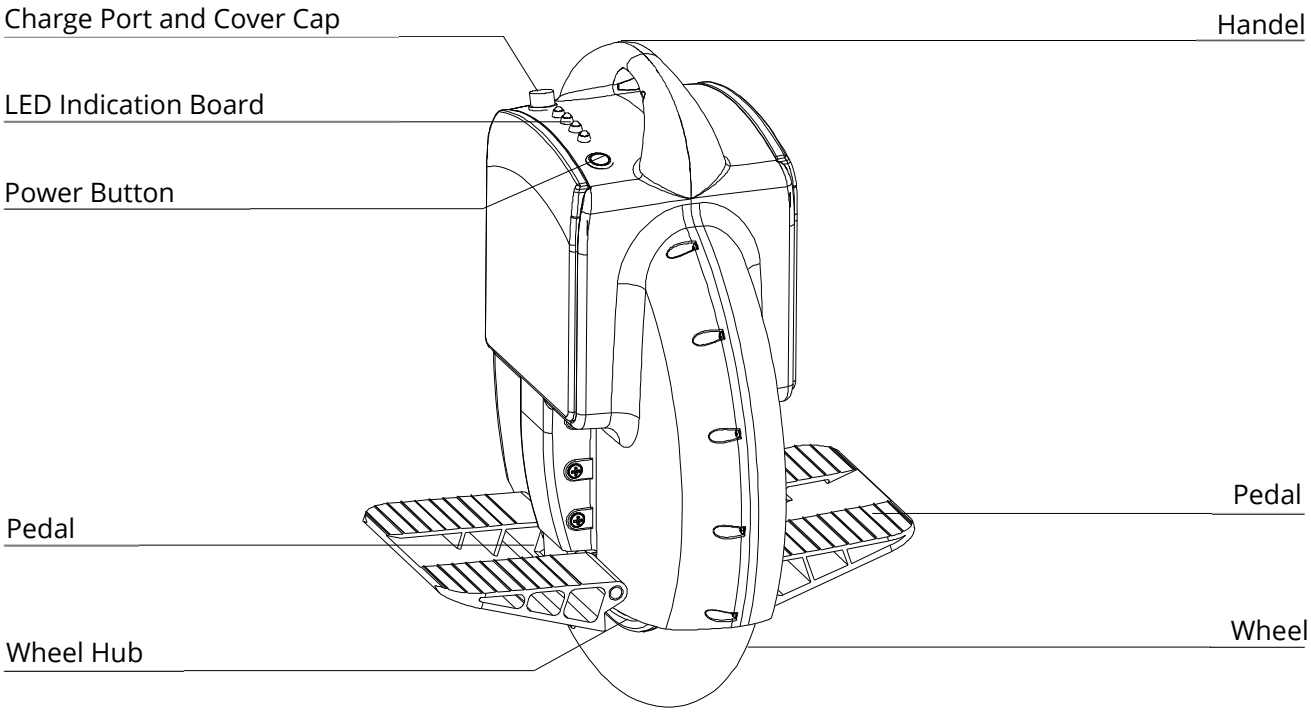
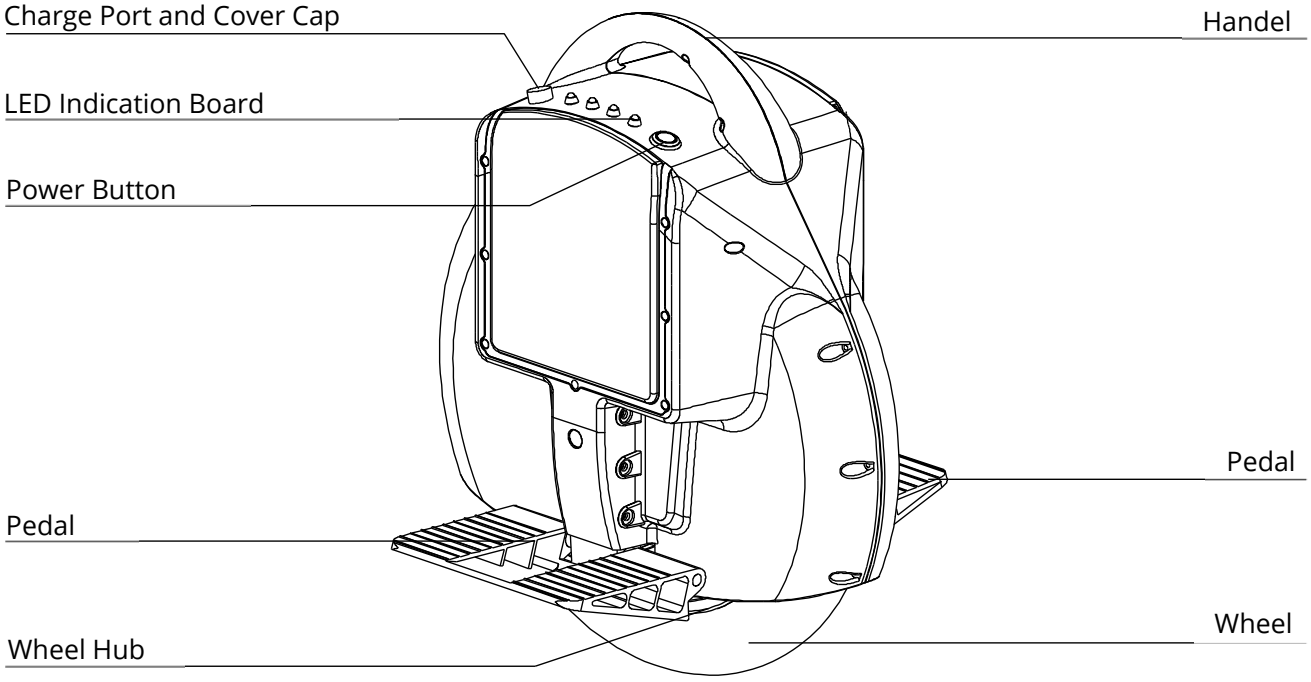
X3


Charge Port and Cover Cap
LED Indication Board
Power Button
Pedal
Wheel Hub
Handel
Pedal
Wheel

X5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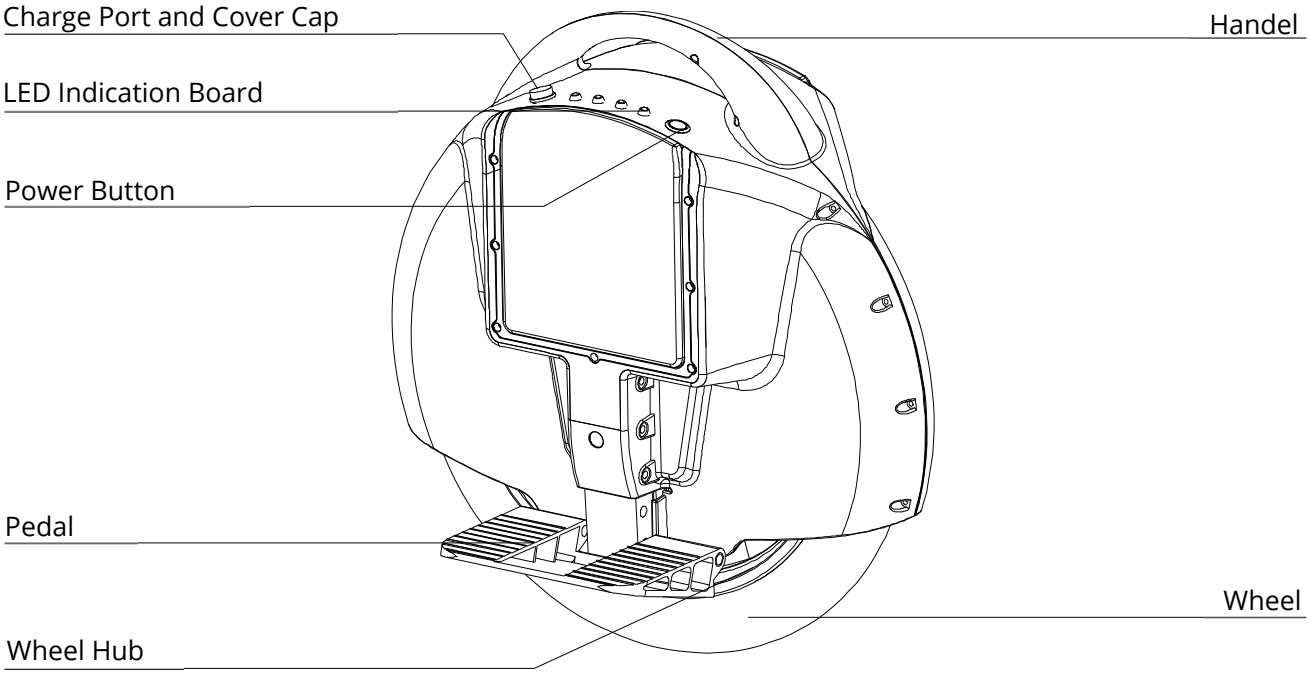
Charge Port and Cover Cap
LED Indication Board
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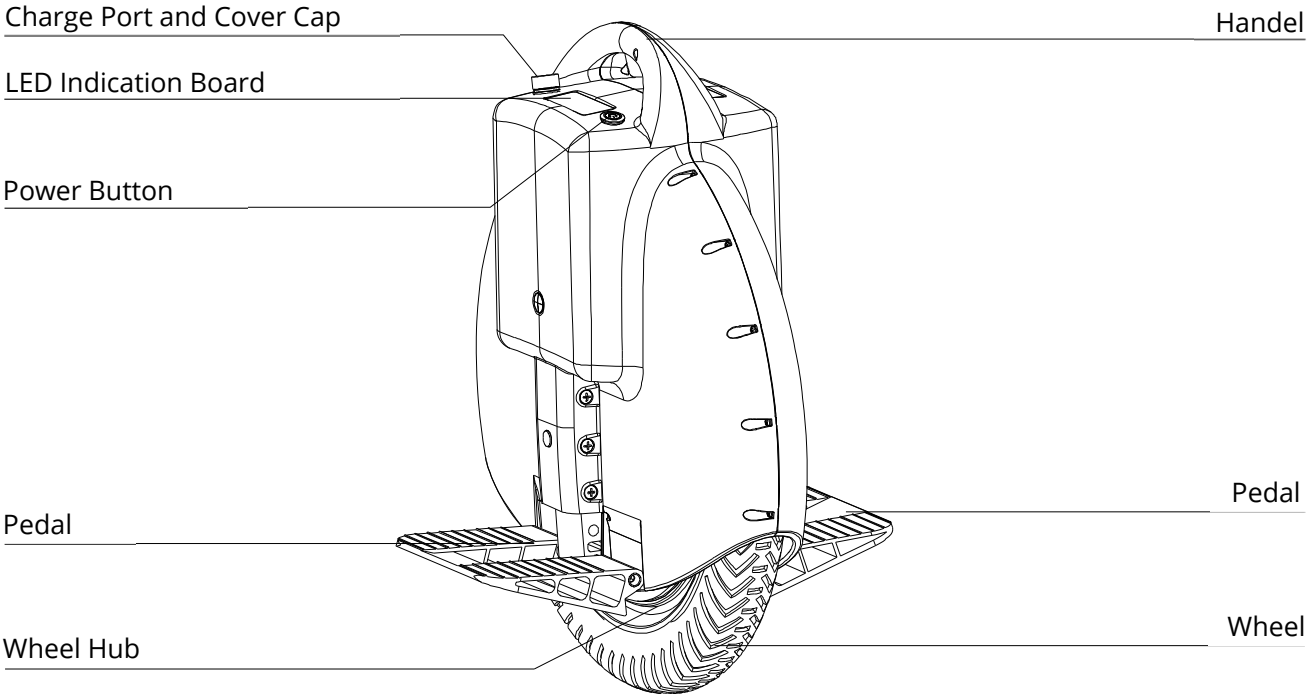
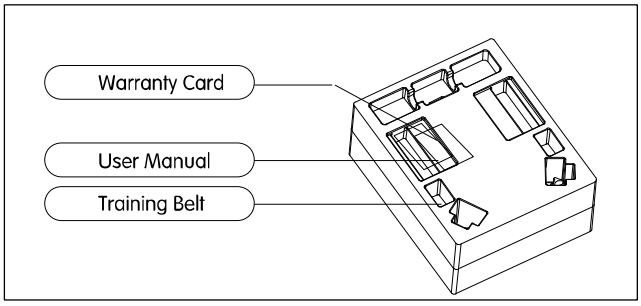
X8

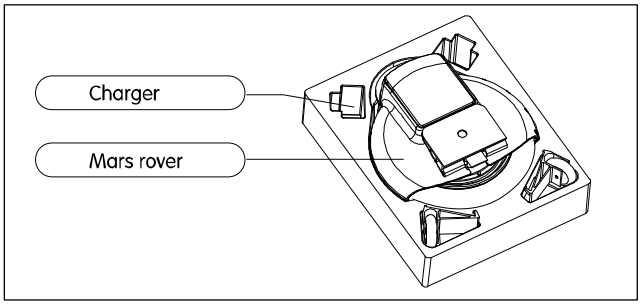

Charge Port and Cover Cap
LED Indication Board
Power Button
Pedal
Wheel Hub
Handel
Pedal
Wheel

8.3 Packing Contents

Check the Items Contained in the Packing Box

Open the packing box and take out Airwheel with care. Airwheel is labeled with a "Road Test Approved sticker, which means It's been tested before leaving factory

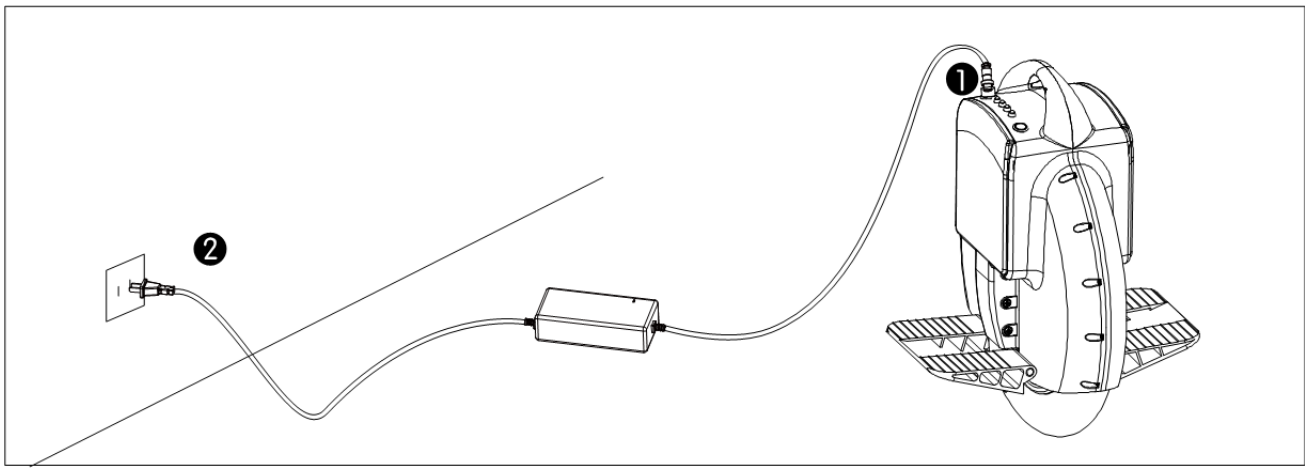




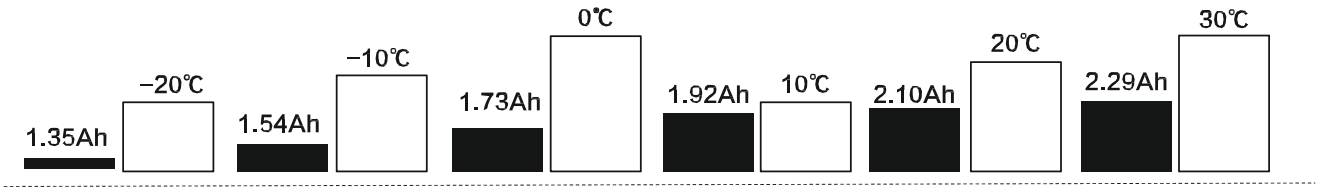
WARNING Please lift Airwheel upward carefully when taking it out from the packing box. Use one hand to grip the handle and the other seize the pedal pillar Instead of hauling the tire straightly, by this way your fingers might be caught In the hub

8.4 Charging Notes

Charge Note: Plug Airwheel to the charger before connecting the charger to power supply. Please continue to charge for 20min after the LED indicators are on green for the first time.

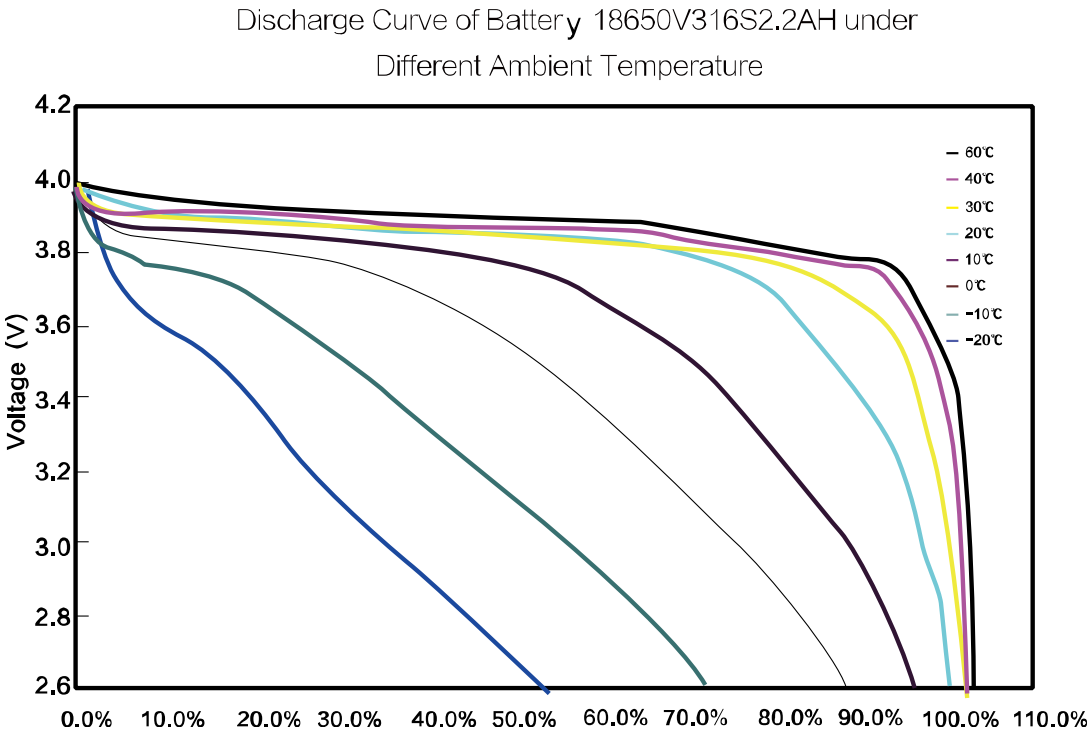


8.5 Battery Performance



Battery Performance (2.2 Ah) Varies with Different Temperatures

8.6 Relationship Equation of Ambient Temperature and Battery Capacity



According to national standard, when tested under room temperature (25℃), the practical battery capacity should be converted to standard practical battery capacity, Ce as per the following formulation:

Ce=Cr/ [1+K (t-25)]

In the above formulation:

Cr: Discharge Capacity under Non-standard temperature

t: Ambient Temperature of the Discharge Process

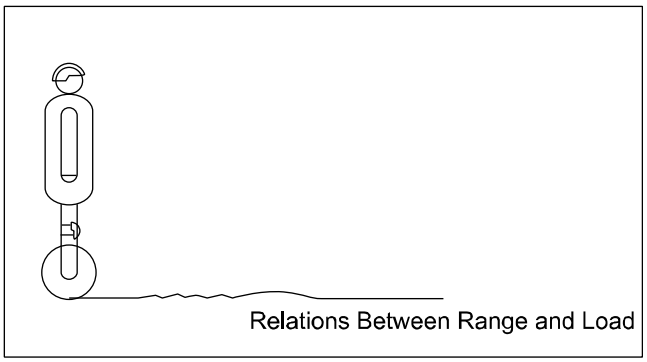
K: Temperature Factor.

For a 10h discharge capacity test, K=0.006/℃; For a 3h discharge capacity test, K=0.008/℃; For a 2h discharge capacity test, K=0.0085/℃; For a 1h discharge capacity test, K=0.01/℃.

8.7 Relations between Range and Load

Relations between Range and Load

Similar to the relations between fuel consumption and cargo load, range per charge is related to rider's body weight. In light of the conclusion we draw from practical tests (rider’s weight: 60kg; riding speed: 7km/h and constant; road condition: smooth and flat), range per charge falls by 1.5-2.0km for each additional gain of 10kg.



8.8 Questions Mostly Asked

Q: How can I tell the front and rear end of Airwheel?

A: Front and rear end are not strictly defined on Airwheel Mars Rover; it’s depended on personal riding preference. Typically the side with power button on the right is prioritized as the front end to facilitate turning it on and off.

Q: When I turn on my Airwheel, all 4 LED indicators are on before blacking out a second later, and then after 3 seconds they are lit again, is it normal?

A: Airwheel initiates with testing its power level indicator and beeper before launching self-inspection of the other major parts when the indicators are lit 3 seconds later. That's perfectly normal.

Q: Front end of my paddle will rise without launching an over speed alert, is it normal?

A: The front end of paddle will rise when the speed exceeds pre-set value (10km/h) and when the speed picks up to 12km/h, the front end of paddle will pose a 1o• angle and alert will be activated to prevent further acceleration.

Q: Can I customize Airwheel to lift the speed limit?

A: Sony can't. Over speed protection is designed to ensure players own safety during usage.

Q: How can I tell whether my Airwheel is fully charged or not?

A: There's a charging indicator light on the charger. A red indicator light indicates that Airwheel is under charging and a green one indicates that Airwheel is fully charged or not charged.

Q: How long do I take to be fully charged?

A: Airwheel's exclusive charger is featured with compensating function. When charging for roughly 1 hour, the charger will be on green, which indicates power level reaches 80% full. Then the battery will perform SOC equalization before getting charged again and this process will be conducted 3 times till the battery is fully charged.

Q: Can I ride Airwheel in the rain?

A: It's forbidden, and please rides slowly when puddles are not drained after rain to avoid bringing water to the internal through 1he tire.

Q: Am I supposed to reboot Airwheel after it falls over every time?

A: Yes, when Airwheel falls over, its internal electronic system will launch tilting protection immediately to protect the player, surrounding passengers and itself. You have to lift it upright and reboot to ride again.

Q: I can't get my Airwheel charged, why?

A: Please follow the default steps to charge your Airwheel: First, plug the charger with Airwheel, then connect the charger to power supply, otherwise the charge process won't start

Q: My Airwheel quivers when travelling at high speed and I can barely stand on it, how to fix this problem?

A: When you are riding at high speed, the front part of paddle will rise, which shifts the center of gravity backward and makes it tricky lo maintain balance on Airwheel, especially on bumpy terrains. Slow down a bit and this problem will be fixed. In addition, uneven tire patterns may also lead to this problem. In this scenario, lay Airwheel flat on ground and roll 1he wheel to check whether the tire covers the wheel rim closely, if not, you need to deflate and adjust the tire before inflating it again.

Q: Should I power off Airwheel to charge or not?

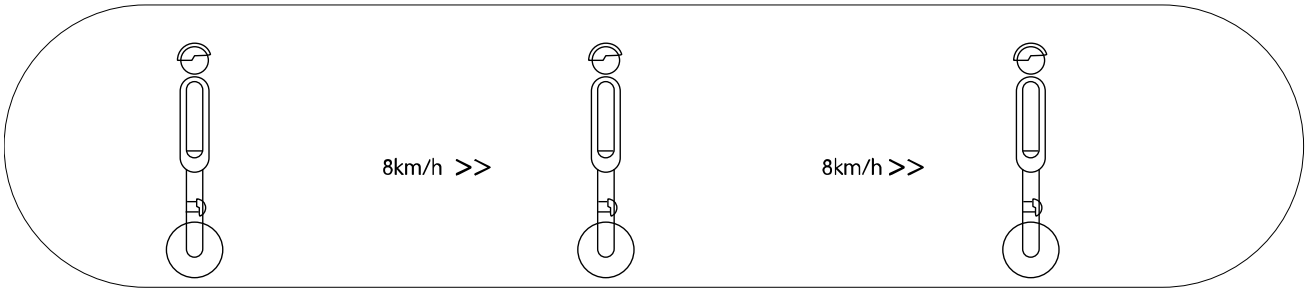
A: Please power off Airwheel for charging.

8.9 Road Test

Airwheel's battery range is closely related to ambient temperature, load, riding manner and battery discharge capacity. Test condition: environment temperature: 30°C; tester's weight: 60kg; test venue: indoor stadium.

The tester rides Airwheel at a constant speed of 8km/h using standard riding manner without any tricks.

Test result: 10% battery capacity remained when test finished. However in practice, lithium battery will conduct a discharge restriction for user's safety and battery life expectancy, which will reserve 30% battery capacity.



8.10 Contact Us

Please contact us as per the following info for any inquiries regarding riding, maintenance and safety issues or any problems and failure during your usage. We'll be glad to offer your prompt assistance.